REMARKS

Claims 2 and 4-6 are active. Claim 5, withdrawn from consideration, is canceled. Claims 6 and 7 are new. The specification is objected to. Claims 2 and 4 are rejected under 35 USC 112, first paragraph. Claim 2 is rejected under 35 USC 103a as being unpatentable over Wood (US Patent 5,733,399) in view of Straughan '758 and Bliss '846 and is rejected under 35 USC 103a over Ndebi et al. (US Patent 6,217,964) in view of Bliss (US Patent 3, 964,846). Claim 4 is rejected under 35 USC 103a as being unpatentable over Wood, Straughan and Bliss '846 in view of Fujiwara et al. (US Patent 5,630,770).

Amendment is made to the specification in the interest of clarity and consistency and to correct typographical errors on page 4, paragraph 00020. Here the as filed specification calls for the thickness of the belt to have a dispersion value of less than 0.4 mm. However, the discussion in this paragraph relates to the thickness of the rubber sheet rather than the belt. On page 5, at lines 1-3, the specification states that the rubber sheet has a thickness of 0.48 +/- 0.02 mm. Plainly, this range of values means that the rubber sheet can have a maximum dispersion value of 0.04 mm or a thickness range of 0.46 to 0.5 mm. In other words, the dispersion value (the range of thickness) of the rubber sheet can be less than 0.04 mm which is what was intended in paragraph 00020, line 19. No new matter is introduced.

Amended claim 2 and new claims 6 and 7 are submitted for the Examiner's reconsideration.

Claim 2 is amended to set forth that which applicants regard as their invention wherein the objected to term "laminated" is deleted This amendment makes moot the objection to the specification and the rejection of the claims under 35 USC 112. This basis of the rejection is met and should be withdrawn.

The Substantive Rejections under 103(a)

Claim 2 is rejected over Wood in view of Straughan and Bliss and over Ndebi in view of Bliss.

Claim 2 calls for:

> forming an elastic solid rubber sheet having a maximum thickness dispersion value of 0.04 mm;
>
> laying said solid rubber sheet onto a cylindrical seamless resin substrate with low elasticity while abutting both ends of said rubber sheet to form a layered cylinder;
>
> placing said layered cylinder between an outer casing mold and a core mold where said seamless substrate faces radially inwardly; and
>
> applying a pneumatic pressure to said layer cylinder for vulcanizing said rubber sheet and for adhering said rubber sheet to said substrate to form a one piece two layer cylinder having a smooth surface on said solid rubber sheet with said thickness dispersion without further finishing the rubber sheet surface.

This claim is not suggested by any of the references cited of record

including Wood, Straughan, and Bliss in combination or taken singly or Ndebi and Bliss in combination or singly.

The claim 2 belt is a two layered structure comprising an outer elastic solid rubber sheet and an inner seamless resin substrate with relatively low elasticity. The outer rubber layer has a thickness dispersion of no more than 0.04 mm and has a highly smooth surface that requires no further polishing (+/- 0.02 mm) after belt formation. In addition, the belt is formed of only two layers and thus is less costly than prior art belts that have more than two layers such as Wood. By preforming the rubber sheet with the highly smooth surface, further finishing after the formation of the belt as suggested by Ndebi's grinding is not required.

Wood does not disclose a two layer belt as claimed comprising a substrate layer of a seamless resin substrate with relatively low elasticiy and an outer elastic layer comprising a rubber sheet having a maximum thickness dispersion of 0.04 mm as claimed. In Fig. 8B, the Wood belt includes five layers including a tooth facing fabric 84, a belt tensile member cord 88, a tooth stock elastomer 92, a barrier layer 94, and a top elastomer 98 (Col. 6, lines 65 to col. 7, line 8, Figs. 8A and 8B). A toothed belt of fabric supported by a cord layer and other layers is foreign to the two layer smooth rubber sheet surface belt of claim 2. The only suggestion to use Wood as a reference comes from applicants' disclosure, which is proscribed hindsight. The other Wood embodiments are equally foreign to claim

2. The Wood belt is not the same as, equivalent to or suggestive of the two layer belt as claimed, either alone or in combination with the remaining cited references of record including Straughan, Bliss or Ndebi.

Wood discloses a toothed belt using a fabric and a cord layer, the fabric being the outer most layer. The toothed five layer woven and corded belt of this reference teaches away from the two layered smooth surface rubber on resin belt of claim 2 amended, teaching away being the antithesis of obviousness.

Straughan, Bliss and Ndebi are of no help in this regard. Straughan discloses a flexible endless belt formed of three members, an inner layer 50, a layer of adhesive 58 and an outer wrap 54, col. 2, lines 53-60, Fig. 2. The Bliss belt is disclosed as comprising three layers, an inner rubber layer 92, a tensile reinforcement 94 and an outer rubber layer 96, col. 4, lines 15-20. These references are silent as to surface finish smoothness. None of Wood, Straughan or Bliss disclose or suggest the maximum thickness dispersion of an outer rubber belt of 0.04 mm as claimed. Therefore, these references are foreign to amended claim 2 calling for a two layer belt with a smooth outer rubber layer.

Ndebi discloses a two layer belt consisting of an elastomeric base ply 40 and an outer polymer 45, col. 5, lines 53-60, Fig. 6. They are silent as to the smoothness of the outer layer of this belt. Further the outer layer of this belt is a polymer and the inner layer is elastomeric. In contrast, the claim 2 belt has a

rubber sheet out layer and an inner layer of a resin. The exact opposite of Ndebi. The smoothness of the outer surface of the Ndebi two layer belt is not disclosed.

In an alternative embodiment, Ndebi discloses a multi layer belt comprising a base layer in which an elastomer is applied to a mandrel, an intermediate polymer layer 42 is applied over a base layer, and then an elastomeric surface layer 44 is applied over the intermediate layer. Col 6, lines 6-18. This is a three layer belt. The smoothness of this belt is not disclosed.

In a further embodiment, a spun cord layer comprising fibers, a base layer, a fabric, a plastic or metal cord is dipped into an elastomer. After the dipped cord is spun wound, a layer of rubber cement is coated over the cord. A cord layer is not the same as or suggestive as the claim resin substrate. The surface smoothness is not disclosed. Col. 6, lines 23-37.

In a further embodiment, a fabric layer (not a resin or rubber layer as claimed), a non-woven or loosely woven fabric is layered over the surface of a cord layer (not a resin or rubber layer). The fabric is dipped in rubber cement prior to application to the cord layer. The belt is then wrapped in a plastic jacket and under heat and pressure the elastomeric rubber is cured. The surface of the outer ply is then finished as desired. The outer layer may be finished by grinding or casting. The outer layer is ground to a finish that is +/- 0.001 inches (+/-0.025 mm or a total range of 0.05 mm). Col. 6, lines 37-53.

None of these Ndebi embodiments suggest or disclose a two layer belt in which the outer layer is rubber and the inner layer is a resin and wherein the outer layer is preformed as claimed to a dispersion thickness of +/- 0.02 mm. Ndebi requires a final finish that is produced by grinding and even this finish is not in the claimed surface finish range. (Claim 2 calls for +/- 0.02 mm = 0.04 mm range whereas Ndebi discloses a greater range of +/- 0.025=0.05 variation and which is formed in plastic and by a final grinding step.). Ndebi does not teach, suggest or disclose an outer rubber sheet that has such a claimed smooth surface finish. In this last Ndebi embodiment the outer surface is plastic and not rubber and even this plastic material requires grinding. Neither Ndebi nor any of the other cited references disclose an outer rubber sheet in a two ply belt that has the claimed surface finish, much less having such a finish without a further additional finishing step, wherein the rubber sheet is preformed prior to forming the belt with the desired surface finish. The cited references do not go so far. Fujiwara is cited merely for its disclosure of applying a coating.

The resulting vulcanized belt has an outer rubber sheet that is smooth to no more than 0.04 dispersion variation of thickness. This belt is used as an intermediate transfer belt in a printer or copy machine and so on. In order to keep sharp printed or copied images it is necessary to use intermediate transfer belts having the claimed smooth surface. This smooth surface is formed without a

further polishing step in the claim 2 method which is formed by the abutment of the ends rather than overlapping and is less costly than those processes using more than two layers and employing subsequent finishing steps not required by the claimed belt.

Belts employing fabric or cord reinforcements are difficult to form with the required smooth surface without such a final finishing step. Ndebi teaches that even a plastic jacket requires a further grinding step. None of the cited references of record teach forming an outer rubber layer with the desired smoothness as claimed prior to formation of the belt. Plastic, woven, cord and fibrous outer layers that need further finishing teach away from amended claim 2.

The claimed belt solves an important problem with prior art belts. It has a flexible elastic rubber outer surface on which toner is transferred from an organic photoconductor (OPC) for example. The rubber layer does not harm the surface of the OPC drum when in contact as compared to plastic which is not as flexible. At the same time, due to low elasticity of the substrate resin layer, the claimed belt exhibits minimum stretching during use. The cited references do not disclose the problem with the prior art belts and the claimed solution. Patentability often resides in recognition of a problem and the claimed solution. See MPEP 2143. For the reasons given, claim 2 is believed allowable.

Claims 4, 6 and 7 depend from and include all of the limitations of claim 2

and are believed allowable for the same reasons given above in respect of claim 2.

For the reasons given, claims 2, 4, 6 and 7 are believed to be in condition for allowance, and such favorable action is hereby solicited.

A check in the amount of $395.00 is enclosed for the fee for the accompanying RCE. The Commissioner is authorized to charge any fees due for this paper or credit any overpayments to Deposit Account No. 03-0678.

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